

6
REVENDEICATIONS

- 1- Neutron detector comprising as scintillating material $Cs_{(2-z)}Rb_zLiLn_{(1-x)}X_6 : xCe^{3+}$, where X is either Br or I, Ln is Y or Gd or Lu or Sc or La, where z is greater or equal to 0 and less or equal to 2, and x is above 0.0005.
- 5 2- Neutron detector according to preceding claim, wherein x is above 0.005.
- 3- Neutron detector according to one of preceding claims, wherein x is less than 0.3.
- 10 4- Neutron detector according to one of preceding claims, wherein x is less than 0.15.
- 5 5- Neutron detector according to one of preceding claims, wherein it is under the form of a monocrystal.
- 15 6- Neutron detector according to preceding claim, wherein the volume of the monocrystal is at least 10 mm³.
- 7- Neutron detector according to either of claims 1 to 4, wherein it is under the form of a powder.
- 8- Neutron detector according to preceding claim, wherein it is either packed or sintered or mixed with a binder.
- 20 9- Neutron detector according to one of preceding claims, wherein its formula is $Cs_2LiYX_6 : xCe^{3+}$.
- 10- Neutron detector according to one of claims 1 to 8, wherein its formula is $Rb_2LiYX_6 : xCe^{3+}$.
- 25 11- Use of a material of formula $Cs_{(2-z)}Rb_zLiLn_{(1-x)}X_6 : xCe^{3+}$, where X is either Br or I, Ln is Y or Gd or Lu or Sc or La, where z is greater or equal to 0 and less or equal to 2, and x is above 0.0005, in neutron detection.
- 12- Use according to preceding claim wherein x is above 0.005.
- 13- Use according to one of preceding use claims, wherein x is less than 0.3.
- 14- Use according to preceding use claim, wherein x is less than 0.15.
- 30 15- Use according to one of preceding use claims, wherein the material is under the form of a monocrystal.
- 16- Use according to preceding claim, wherein the volume of the monocrystal is at least 10 mm³.

- 17- Use according to one of claims 11 to 14, wherein it is under the form of a powder.
- 18- Use according to preceding claim, wherein it is either packed or sintered or mixed with a binder.
- 5 19- Use according to one of preceding claims, wherein its formula is $Cs_2LiYX_6:xCe^{3+}$.
- 20- Use according to one of claims 11 to 18, wherein its formula is $Rb_2LiYX_6:xCe^{3+}$.
- 10 21- Material of formula $Rb_2LiYX_6:xCe^{3+}$ where X is either Br or I, Ln is Y or Gd or Lu or Sc or La, and x is above 0.0005.
- 22- Material of formula $Cs_{(2-z)}Rb_zLiLn_{(1-x)}I_6 : xCe^{3+}$, where Ln is Y or Gd or Lu or Sc or La, where z is greater or equal to 0 and less or equal to 2, and x is above 0.0005.
- 23- Material according to claim 21 or 22, where x is above 0.005.
- 15 24- Material according to one of preceding claims of materials, wherein x is less than 0.3.
- 25- Material according to preceding claim, wherein x is less than 0.15.
- 26- Material according to one of preceding claims of materials, wherein it is under the form of a monocristal.
- 20 27- Material according to preceding claim, wherein the volume of the monocristal is at least 10 mm³.
- 28- Material according to one of claims 21 or 22, wherein it is under the form of a powder.
- 29- Material according to preceding claim, wherein it is either packed or sintered or mixed with a binder.